Barriers in the approach of obese patients undergoing bariatric surgery in Flemish hospitals

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Manuscript type: Original contribution

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Running head: Approach of bariatric patients

Key words: Bariatric surgery, obesity, multidisciplinary team, approach, counseling, nutritional deficiencies, medication, qualitative interviews

Acknowledgements

A special thanks to Virginie Cruyt, Evelien Van Dijck, Stephanie Vrancken and Patricia Bosmans for their contribution to this paper, for their efforts, their dedication and their work and Margot Kennis for the translation of the quotes.

Ina Gesquiere receives a PhD scholarship from the Agency for Innovation by Science and Technology, Flanders, IWT-111328. The authors declare no conflict of interest.

Abstract

Background Bariatric surgery is associated with weight loss and improvement of comorbidities of obesity, but also with short and long-term complications. Preoperative screening and lifelong follow-up of these patients is important to optimize the effect of bariatric surgery and minimize complications. The objective of this study was to create an inventory of the current care offered to bariatric patients before and after surgery in Flemish hospitals, Belgium and to identify barriers for optimal care.

Methods Semi-structured interviews with healthcare professionals involved in screening and follow-up of bariatric patients in 12 hospitals in Flanders, Belgium were performed. Interviews were transcribed verbatim and analyzed with Nvivo 10.0.

Results In each participating hospital, except one, biochemical screening before and after bariatric surgery was performed, but the extent and timing varied between hospitals. In 10 hospitals, a standard multivitamin preparation was started in all patients after surgery, but there was large variation for timing of initiation and duration between hospitals. The interviewees indicated that the knowledge about appropriate dosage and formulation adjustments after surgery was limited. Most of the performed drug adjustments were due to improvement of comorbidities. In nine of twelve hospitals, a multidisciplinary team was involved, but the approach varied widely. Only in 3 out of 12 hospitals, eligibility of patients for bariatric surgery was discussed in team meetings.

Conclusions Strategies to implement existing guidelines are required in order to obtain more uniform, interdisciplinary support for bariatric patients, resulting in an increase of efficiency of surgery and improved patient care.

Introduction

Over the last decades, the prevalence of obesity has increased to epidemic proportions [1]. This is associated with an increase in the number of performed bariatric surgeries, currently the only way to achieve major and sustainable weight reduction in morbid obese patients [2]. Bariatric surgery also has beneficial effects on certain co-morbidities of obesity such as type 2 diabetes, hypertension and sleep apnea [3]. However, both short and long-term complications can occur and nutritional deficiencies often arise [4]. Furthermore, the absorption of oral administrated drugs can be altered after bariatric surgery, which may cause under- or overdosing resulting in serious therapeutic consequences [5;6]. To minimize complications, screening and follow-up by a multidisciplinary team that has knowledge about changes and problems after bariatric surgery are essential [7-9].

In Belgium, patients older than 18 years with a BMI≥40 kg/m² (or BMI≥35 kg/m² associated with comorbidities), receive reimbursement of the costs for bariatric surgery from the National Institute for Health and Disability Insurance (NIHDI), if they followed a documented diet during one year and obtained approval from the surgeon, internist and psychologist/psychiatrist. However, no follow-up consultations are required. Moreover, there is no reimbursement of screening and follow-up consultations.

The American Association of Clinical Endocrinologists/The Obesity Society/American Society for Metabolic & Bariatric Surgery (AACE/TOS/ASMBS) and the European Chapter of the International Federation of Surgery (IFSO-EC)/European Association for the Study of Obesity (EASO)/EASO Obesity Management Task Force (EASO OMTF) have designed guidelines concerning bariatric surgery, including screening and follow-up [10;11], but to what extent these guidelines are followed in clinical practice is not known.

The objective of this study was therefore to create an inventory of the current care offered to bariatric patients before and after surgery in Flemish hospitals, Belgium, and to identify barriers for optimal care.

Methods

Setting and sampling

Twelve hospitals that were selected by purposive and convenience sampling, participated in this study. All were based in Flanders, Belgium. We included 3 small, 5 medium and 4 large bariatric centers (< 100, 100-200 and >200 bariatric surgeries/year, respectively). In all participating hospitals, semi-structured interviews were performed with healthcare professionals (HCPs) (e.g. surgeons, endocrinologists, psychologists, dietitians, cardiologists) involved in the screening and follow-up of bariatric patients during the period July 2013 – February 2014. Participating HCPs gave written informed consent. Ethical approval was obtained (ML8339).

Data collection

Four researchers conducted the semi-structured interviews. Based on information from literature and direct observation in a hospital, an interview guide, consisting of 3 major topics, was compiled: prevention and follow-up of nutritional deficiencies, medication, and multidisciplinary counseling. All interviews were performed in Dutch, the mother tongue of the interviewees. The interviews were audio recorded and transcribed verbatim, after which the recordings were removed.

Data analysis

Four investigators discussed the transcribed interviews to develop a coding scheme in Nvivo 10.0. The transcripts were then reread and coded by three researchers. A coding comparison test was performed to determine inter-rater variability and degree of agreement between coders. The overall mean kappa coefficient was 0.96 and the percentage of agreement was 98.39%. Quotes mentioned in the text have been translated from Dutch to English by a certified translator.

Results

In this study, 45 HCPs involved in the screening and follow-up of bariatric patients were interviewed in 12 different hospitals. The characteristics of the hospitals and interviewees, and the number of hospitals following the main recommendations from existing guidelines, are summarized in Table 1 and Table 2.

Nutritional evaluation

Regarding follow-up of nutritional deficiencies, each hospital, except one, performed pre- and postoperative biochemical screening. However, the extent and timing of the screening varied between hospitals and 25% of the hospitals screened only once after surgery. In one hospital, diagnosis of post-surgery nutritional deficiencies was only based on clinical symptoms.

Remarkably, in 9 hospitals, blood collection for follow-up was performed by the general practitioner (GP), while the results were discussed with the surgeon. In one hospital, the GP was responsible for the entire follow-up of deficiencies. The interviewees indicated drop out of patients for follow-up occurred frequently, despite the fact that the hospitals provided follow-up consultations.

In ten hospitals, a multivitamin preparation was systematically started in all patients after surgery. In one of the other hospitals, multivitamins were only started if patients developed a deficiency; in the other hospital all patients received a supplement of vitamin D and calcium instead of a multivitamin preparation. We further observed that the timing of initiating a multivitamin preparation varied between a few days to six months after surgery and that the duration varied from one year to lifelong (in 1/3 of the hospitals). The opinions on the value of lifelong vitamin supplementation varied; some interviewees supported it *"I think it is of vital importance to take extra vitamins. When I draw up what these people eat, they never reach their required amount of vitamins*", while others found it useless *"That's some very expensive urine. Because half of what you ingest, you simply pee out again*". All hospitals initiated specific micronutrient supplements upon development of a nutrient deficiency (both pre- and postoperatively).

Medication

All hospitals inquired actual medication use before surgery. In one hospital, a clinical pharmacist was responsible for this part of the assessment; in the other hospitals it was done by the physician/surgeon.

Many interviewees indicated that their knowledge about appropriate dosage and formulation adjustments after bariatric surgery is very limited. They acknowledged that adjustments of drug

dosages were mostly due to the improvement of comorbidities. Dosage adjustments due to altered pharmacokinetics were not performed, unless patients showed unexpected side effects or less effect of the drug. In a minority of the hospitals medication with an extended release or a large size was systematically replaced by an alternative.

After surgery, in at least 9/12 hospitals, a proton pump inhibitor (PPI) was systematically initiated. Furthermore, most HCPs reported to avoid medication that increases the risk of gastrointestinal ulceration such as NSAIDs and corticosteroids.

Most surgeons referred to the GP and allied specialized physician for follow-up of patients' medication use as they do not want to undermine the role of HCPs in primary care. "*We don't want to fight over it. We shouldn't create the feeling that bariatric surgery is a direct ticket to the hospital.*"

Multidisciplinary approach

In 9/12 hospitals, the multidisciplinary team involved in the care of bariatric patients, consisted of at least four members: surgeon, internist, dietitian and psychologist/psychiatrist. However, there was a large variation in multidisciplinary approach between the hospitals. In 3/12 hospitals, eligibility for surgery was discussed in meetings with all team members. In other hospitals, eligibility of doubtful cases was either discussed in direct contact or contact by telephone; in other cases the medical record of the patient served as exchange platform. In two hospitals, the medical record was the only means of exchange of information.

In the hospitals where multidisciplinary meetings were established, most HCPs experienced better communication between the team members, better assessment and screening of patients, more uniformity in the care process,... "*For me it's the combination, the multidisciplinary nature, the combination of being open to each other, exchanging ideas. That for me is the complete approach and the patient should notice this."* These interviewees also claimed that without effective communication between HCPs, it is difficult to know what has already been discussed with the patient and whether patients are telling the truth: "*Because beware: patients can be very naughty at such instances. Some have the guts to simply go to the surgeon and lie. To state: 'Yes, but I've been*

there and everything was ok'." Others found no added value for a multidisciplinary approach: "*Actually I don't have much time for that, but then I again, when I see that everyone agrees, I also think it is useless.*"

Interviewees mentioned lack of time and budget and distance between different departments of the hospital as possible causes of the low implementation of multidisciplinary meetings.

Remarkably, in 3/12 hospitals the dietitian was not involved in the preoperative screening. In these hospitals the role of the dietitian was thought to be replaced by another team member, but this was not done consistently. Furthermore, only in seven hospitals there was a standard follow-up consultation by the dietitian and only in two hospitals by a psychologist. One hospital had a clinical pharmacist in the multidisciplinary team (only involved preoperatively).

DISCUSSION

The interviews with HCPs involved in screening and follow-up of bariatric patients shows that the approach of obese patients before and after bariatric surgery varies widely between hospitals.

Nutritional evaluation

The clinical practice guideline composed by AACE/TOS/ASMBS, states that there is strong evidence for appropriate nutritional evaluation of all patients who will undergo bariatric surgery [10]. This was also highlighted in recent studies, emphasizing on screening and life-long follow-up for nutritional deficiencies [7;10]. The current study shows that preoperative biochemical screening was performed in all participating hospitals, although often very limited. Besides, there was a wide variation in timing of follow-up consultations, which were often performed in cooperation with the GP. Hence, effective communication between primary and secondary care is necessary. Furthermore, GPs need sufficient knowledge regarding the impact of bariatric surgery.

The guidelines from ASMBS and from the Clinical Guidelines Subcommittee of the Endocrine Society both recommend the long term use of multivitamins after bariatric surgery. Additional supplementation is required in many patients; the extent of which depends on the type of surgery. However, up till now the exact need of additional supplementation is not known [10;12;13]. In the

current study, we found a wide variation between hospitals for timing of initiation and duration of multivitamin supplementation. As interviewees indicated that they have insufficient knowledge about supplementation of micronutrients, more training and standardization is required.

Medication use

Patients who will undergo bariatric surgery should receive information about the influence of the surgery on medication use to avoid medication related problems [14]. Bariatric surgery alters the anatomical structure of the gastro-intestinal tract, which has an impact on drug bioavailability. The clinical effect of the potentially altered drug bioavailability is for most drugs currently unknown. This limited knowledge about medication adjustments after bariatric surgery was also mentioned by many interviewees.

The improvement of comorbidities after bariatric surgery, and the concomitant improvement in medication use for these comorbidities are well known [15;16]. Regarding drug use, the guidelines of ASMBS therefore recommend a repeated evaluation of the comorbidities to adjust the associated drug use, as well as the avoidance of the use of NSAIDs [10]. Both guidelines were followed in most of the participating hospitals.

In the current study, only a minority of HCPs took into account the formulation of drugs and supplements upon prescribing. From a theoretical point of view, it is suggested to avoid medication with an extended release [17]; however, up till now, no comparative studies have been performed with a controlled release formulation after RYGB to underpin this recommendation. Furthermore, it is recommended to change some formulations early after bariatric surgery, e.g. tablets should be crushed or changed to a liquid formulation for three to eight weeks after surgery [18]. In the ASMBS guidelines, a chewable form of micronutrient supplements is therefore recommended during the first 3 to 6 months after surgery [10]. In our study, only in two hospitals supplements were initiated in a liquid formulation.

Multidisciplinary approach

Different papers have already highlighted the need for a multidisciplinary approach of patients with bariatric surgery in order to provide more uniformity and to improve preoperative screening and postoperative care [19;20;21]. The main advantage of a multidisciplinary team is providing a continuum of care to optimize outcomes and minimize complications [22].

The current study showed that there was a large variation in multidisciplinary approach (e.g. members of the team, communication) among the participating hospitals. This is in line with a previous survey performed by Santry et al. in the USA [20]. In the hospitals with established multidisciplinary meetings, the interviewees experienced better communication. Communication is essential for safe care in patients undergoing bariatric surgery [22].

The Interdisciplinary European Guidelines advise to involve a dietitian and/or nutritionist in the multidisciplinary team [11]. Registered dietitians can help patients making informed choices regarding bariatric surgery and they can educate and counsel them during postoperative follow-up as adjustment of their eating behavior and lifestyle is required to obtain optimal outcomes of surgery [23-25]. The ASMBS, recommends that all patients who will undergo bariatric surgery should have a proper nutritional evaluation [10]. Although dietitians are specialized in nutritional assessment and counseling, not all participating hospitals engaged them in screening and follow-up. Moreover, interviewees indicated that patients often not maintained counseling by a dietitian, and suggested that reimbursement of these consultations could facilitate long-term follow-up.

Likewise, a psychosocial evaluation before and after bariatric surgery has been shown to optimize the outcomes of bariatric surgery [26;27]. In all participating hospitals, a psychologist/psychiatrist was involved in the multidisciplinary team. This result, which is in contrast with the data of a study performed by van Hout et al. in The Netherlands, is probably due to the fact that screening by a psychologist/psychiatrist is required for reimbursement of the surgery in Belgium [28].

Only in one hospital, a clinical pharmacist was involved in the multidisciplinary team. Nevertheless, Silverman et al. has shown that collaboration between surgeons and pharmacists improved

pharmaceutical care in these patients as the pharmacist suggested to crush medication, to change the formulation and gave other relevant pharmaceutical advice [29].

The barriers to implement a multidisciplinary approach mentioned in literature and raised during the interviews are comparable, with lack of time and budget as the most important [22]. To promote a true multidisciplinary approach, a compensation for multidisciplinary meetings should be provided. Furthermore, reimbursement of follow-up consultations could help. A recent review performed by Kim et al., has shown that gastric bypass surgery resulted in a greater weight loss when patients attended follow-up appointments [30].

Recommendations

Based on these findings, we believe there is a need for strategies to implement existing guidelines in order to offer multidisciplinary support for bariatric patients. Moreover, HCPs indicate they have insufficient knowledge of how to adapt drug regimens or nutritional support following surgery. Thus, more studies are needed to increase knowledge about micronutrient supplements and the influence on medication absorption.

Strengths and limitations

The included hospitals were spread over Flanders and consisted of large and small centers, assuming representativeness for Flanders. Current practice in other countries, however, may differ from these observations, and may be closer to or further from implementation of the guidelines. The advantage of the performed qualitative interviews is that it gives insight in participants' feelings and expectations, hence allowing an exploration of strengths and weaknesses in current care.

CONCLUSIONS

Current care for bariatric patients in Flemish hospitals, both before and after surgery, varies widely. Strategies to implement existing guidelines are required in order to obtain more uniform, multidisciplinary support for bariatric patients, resulting in an increase of efficiency and improved patient care.

ACKNOWLEDGEMENTS

A special thanks to Virginie Cruyt, Evelien Van Dijck, Stephanie Vrancken and Patricia Bosmans for their contribution to this paper, for their efforts, their dedication and their work and Margot Kennis for the translation of the quotes.

Ina Gesquiere receives a PhD scholarship from the Agency for Innovation by Science and Technology, Flanders, IWT-111328. The authors declare no conflict of interest.

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Table 1. Characteristics of the hospitals (H) and interviewees

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12
Hospital												
Size (small S, medium M, large L)	M	S	M	M	S	S	L	L	L	M	L	M
MD team	x	x	x	x	x	x	x	x	x	0	x	x
Interviewees												
Surgeon	x	x	x	x	x	x	x	x	●	x	x	x
Psychologist	x	x	x	x	x		x	x	x		x	
Dietitian	x	x		x	x	x	x	x	x		x	x
Endocrinologist				x	x	x	x	x	x			x
Psychiatrist			x			x				x		x
Cardiologist	x											
Gastroenterologist					x							
Nurse							x			x		
Clinical pharmacist						x						
Physiotherapist								x				

X interviewed

0 not present in hospital

● involved in screening and follow-up of bariatric patients, but not interviewed

302 **Table 2:** number of hospitals following recommendations from existing guidelines

Recommendation	Number of hospitals
Biochemical screening of nutritional deficiencies preoperative [10;11]	12/12
Biochemical screening of nutritional deficiencies postoperative[10;11]	11/12
Standard initiation of a multivitamin preparation postoperative [10;12]	10/12
Early postoperative care: guidance by a registered dietitian [10]	7/12
Presence of multidisciplinary team [10;11]	9/12

303